



Figure 3. A computed tomography angiography image shows the patent stent in left anterior descending artery

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Intraoperative measurement of Qp/Qs ratio may be helpful in determining the strategy for sinus venosus type ASD

Intraoperatif Qp/Qs oranının hesaplanması sinüs venosus tipi ASD'nin kapatılması stratejisinde yardımcı olabilir

Nearly all sinus venosus type atrial septal defect (ASD) cases are associated with partial anomalous pulmonary venous connection (PAPVC). Location of orifice and size of PAPVC are important factors in determining

surgical treatment method. The most commonly used method in surgical repair is ASD closure by using a single patch and leaving the PAPVC orifice in the left atrium. After this treatment an occlusion in vena cava superior may be observed which may require cavoplasty with a second patch (2-4). In this technique particularly if PAPVC drains into vena cava superior at a very high level, two corridors should be formed by placing a patch on vena cava superior through a long posterolateral caval incision. This may lead to systemic pulmonary venous obstructions and supraventricular arrhythmias in early or late postoperative days (2). Furthermore, it was reported that the frequency of supraventricular arrhythmias were increased in patients with low diameter SVC which was expanded before two corridor formation. If PAPVC is too large to be left in the right circulatory system, it can be treated by Warden technique, in which supraventricular arrhythmias are observed less frequently. In two different series, sinus rhythms are reported to be maintained and no pulmonary vein obstruction is observed in patients operated by Warden technique (5).

Our case, is an 18 years old women. Sinus venosus type ASD was determined by transthoracic and transesophageal echocardiographies (TEE) and the shunt ratio Qp/Qs was 3:1. Sinus venosus type ASD was also confirmed by cardiac catheterization and the calculated Qp/Qs ratio was 3:2. Pulmonary artery pressure was 50 mmHg. The interdisciplinary consultation decision was surgical closure of the ASD.

Operative technique

Median sternotomy was performed. Surrounding tissues around superior vena cava were dissected up to azygos vein in order to examine presence of partial anomalous pulmonary venous connection and high PAPVC small-medium size was observed. Qp (O₂ content of pulmonary vein-O₂ content of pulmonary artery/oxygen consumption)/Qs (O₂ content aorta-mixed venous O₂ content/ O₂ consumption) rate was found as 2.9. Fick principle was used to detect Qp/Qs rate, intraoperatively (1). Qp/Qs ratio was 2.9 before cardiopulmonary bypass (CPB). This values were obtained by echocardiography (3.1), and cardiac catheterization (3.2). Then superior vena cava cannula was placed into the innominate vein and after bicaval cannulation CPB was initiated. Sinus venosus type ASD was observed. One small-medium sized pulmonary vein draining to vena cava superior closer to innominate vein was observed. This small-medium sized PAPVC was considered to be left in the right circulation system and ASD was closed with pericardial patch. Cardiopulmonary bypass was terminated. Qp/Qs ratio was calculated with switching back to the respiratory measures and FiO₂ values prior to surgery by obtaining blood gas samples from appropriate sites, Postoperative Qp/Qs ratio was calculated as 1.1. The patient was discharged on the 4 th postoperative day without any complications.

In conclusion, PAPVC with small-medium size can be left in right circulation system (6). In our case, the encountered small medium size PAPVC was left in the right circulation system. Preoperative Qp/Qs ratios (TEE;3.1, cardiac catheterization:3.2) and intraoperative Qp/Qs ratio (2.9) before the closure of ASD were similar. Intraoperative Qp/Qs ratio after ASD closure (1.1) and postoperative Qp/Qs ratio on TEE (1.2) were low. So the PAPVC was considered to be left in the right circulation.

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